

STARELLA STRL 87-1

8700/nav

NAVIGATION LOG

JANUARY 8 - 18, 1987

CAYMAN TROUGH

DILLON/EDGAR

**U.S. GEOLOGICAL SURVEY
OFFICE OF MARINE GEOLOGY**

Woods Hole, Massachusetts

02543

104447

U.S.G.S.
INTEGRATED NAVIGATION
SYSTEM
AND
NORTHSTAR LORAN-C
NAVIGATION LOG

SHIP R/V STARELLA
CRUISE NO. Caymen Trough
DATE 8-18 Jan 1987
CHIEF SCIENTIST Dillon / Edgar

YR	MO	DAY	NBS. TIME	LINE #	SHIPS	COURSE	SPD	FIX TIME	NAVIGATION		TYPE	QUAL.
									± DEGREES	± MINUTES		
± DEGREES	± MINUTES	LONGITUDE	± DEGREES	± MINUTES								
870108104500	12974.6K								18	06.8	75	34.8
8701081100001	2944.6K								18	07.3	75	35.9
8701081115001	2934.5K								18	07.7	75	37.0
8701081130001	2934.7K								18	08.2	75	38.2
8701081145001	2964.7K								18	08.7	75	39.3
8701081200001	2944.8K								18	09.2	75	40.4
8701081215001								
8701081500001	2946.1K								18	15.-	75	54.3
8701081600001	-236.3								18	17.7	76	00.3
8701081700001	2945.7								18	20.2	76	06.0
8701081800001	2976.9								18	22.6	76	11.8
8701081839002	08.65.2								18	24.9	76	14.8
8701081900002	30.94.8								18	26.5	76	14.0
8701081915002	32.45.9								18	27.7	76	13.2
8701081930002	32.86.7								18	28.9	76	12.5
8701081945002	32.55.7								18	30.2	76	11.7
8701082000002	33.75.7								18	31.2	76	11.0
8701082015002	34.46.1								18	32.2	76	10.3
8701082030002	33.15.0								18	33.3	76	09.7
8701082045002	31.25.5								18	34.3	76	09.0
8701082050002	30.95.5								18	35.4	76	08.3
8701082115002	32.65.7								18	36.7	76	07.5
8701082130002	31.56.0								18	37.9	76	06.7
8701082145002	31.55.9								18	39.2	76	05.7
8701082200002	32.66.0								18	40.4	76	05.1
8701082215002	33.16.1								18	41.7	76	04.3
8701082230002	32.9.86.0								18	43.0	76	03.5
8701082245002	32.26.2								18	44.3	76	02.6
8701082300002	31.16.5								18	45.6	76	01.8
8701082315002	31.46.2								18	46.9	76	00.9

YR	MO	DAY	TIME	LINE #	SHIPS		FIX TIME	NAVIGATION		TYPE	QUAL.
					COURSE	SPD		LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES		
8701082330	002	28.9	6.4					18 48.3	76 000.0		
8701082345	002	231.8	6.1					18 49.6	75 59.2		
8701082350	000	233.8	6.0					18 50.9	75 58.4		
8701090015	002	230.4	6.1					18 52.2	75 57.6		
8701090030	002	231.6	6.8					18 53.5	75 56.7		
8701090045	002	229.2	5.5					18 54.8	75 55.9		
8701090100	002	298.8	5.5					18 55.2	75 54.9		
8701090115	003	109.8	5.6					18 54.7	75 53.4		
8701090130	003	106.5	6.6					18 54.3	75 52.0		
8701090145	003	108	6.5					18 53.7	75 50.5		
8701090200	003	106.1	6.3					18 53.3	75 49.0		
8701090215	003	110.8	6.2					18 52.7	75 47.6		
8701090230	003	106.2	5.6					18 52.2	75 46.2		
8701090245	003	111.3	5.1					18 51.7	75 44.8		
8701090300	003	108.7	5.7					18 51.2	75 43.4		
8701090315	003	108.3	5.6					18 50.7	75 42.0		
8701090330	003	108.9	5.5					18 50.3	75 40.6		
8701090345	003	110.0	5.3					18 49.8	75 39.2		
8701090400	003	110.0	5.8					18 49.3	75 37.8		
8701090415	003	107.4	5.9					18 48.8	75 36.4		
8701090430	003	110.5	5.7					18 48.4	75 35.8		
8701090445	003	107.5	5.9					18 47.8	75 33.5		
8701090500	003	107.7	5.5					18 47.4	75 32.1		
8701090515	003	108.8	5.8					18 46.9	75 30.6		
8701090530	003	108.8	5.8					18 46.4	75 29.2		
8701090600	003	109.1	5.8					18 45.4	75 26.2		
8701090615	003	110.0	5.6					18 44.9	75 24.8		
8701090630	003	105.5	6.0					18 44.9	75 23.4		
8701090645	003	109.4	5.7					18 43.9	75 21.9		
8701090700	003	116.0	5.8					18 43.4	75 20.5		

END of LINE 2

START OF LINE 3

2 | | SOT 2.

9/1 0435 19 deg-4 end of line 5
76 45.9

B/C 0438 19^{6.5}
76 46.2 begin line 6

como van las cosas

				SHIPS		NAVIGATION									
YR	MO	DAY	TIME	LINE #	COURSE	SPD	FIX TIME	LATITUDE		LONGITUDE		TYPE	QUAL.		
								± DEGREES	± MINUTES	± DEGREES	± MINUTES				
8701090715003			090715003	109.1	5.5			18	42.8	75	19.1				
8701090730003			090730003	109.2	5.6			18	42.4	75	18.7				
8701090745003			090745003	107.3	5.6			18	41.9	75	16.4				
8701090800003			090800003	107.6	5.5			18	41.5	75	15.0				
8701090815003			090815003	109.7	5.4			18	41.0	75	13.7				
8701090830003			090830003	110.0	5.8			18	40.5	75	12.3				
8701090845003			090845003	110.7	5.7			18	40.0	75	10.9				
8701090900003			090900003	112.0	5.8			18	39.5	75	09.5				
8701090915003			090915003	109.1	6.0			18	39.0	75	08.0				
8701090930003			090930003	109.9	6.2			18	38.5	75	06.6				
8701090945003			090945003												
8701090942003			090942003					18	38.1	75	05.3				
87010909445004			0909445004												
8701090950004			0950004	197.0	6.5			18	37.4	75	05.3				
8701091000004			1000004	199.0	6.5			18	36.5	75	05.6				
8701091015004			1015004	200.3	6.7			18	34.9	75	06.2				
8701091030004			1030004	199.7	7.0			18	33.3	75	06.8				
8701091045004			1045004	199.1	6.8			18	31.9	75	07.5				
8701091054004			1054004					18	30.9	75	07.8				
8701091102005			102005	287.2	6.5			18	30.7	75	08.5				
8701091115005			1115005	290.1	6.5			18	31.2	75	09.8				
8701091130005			1130005	290.8	6.1			18	31.7	75	11.2				
8701091145005			1145005	292.6	7.5			18	32.2	75	12.8				
8701091200005			1200005	292.5	6.7			18	32.8	75	14.2				
8701091215005			1215005	290.3	5.7			18	33.4	75	15.7				
8701091230005			1230005	290.4	7.1			18	33.9	75	17.2				
8701091245005			1245005	290.5	6.3			18	34.5	75	18.8				
870109130005			130005	290.0	5.8			18	35.2	75	20.8				
8701091315005			1315005	288.5	6.5			18	35.5	75	21.6				
8701091330005			1330005	293	6.6			18	36.0	75	23.1				

YR	MO	DAY	TIME	LINE #	SHIPS	FIX TIME	NAVIGATION		TYPE	QUAL.
							± DEGREES	± MINUTES		
87	01	09	13	45	0052906.9		18	36.6	75	24.6
87	01	09	14	0005292.8	6.8		18	37.1	75	26.1
87	01	09	14	15	005290.9	6.5	18	37.6	75	27.5
87	01	09	14	30	005292.9	6.0	18	38.1	75	28.8
87	01	09	14	44	5005288.7	6.3	18	38.6	75	30.2
87	01	09	15	00	005290.7	5.2	18	39.1	75	31.5
87	01	09	15	15	005294.2	6.7	18	39.6	75	32.8
87	01	09	15	30	005293.0	5.8	18	40.0	75	34.0
87	01	09	15	45	005294.7	5.2	18	40.4	75	35.1
87	01	09	16	00	005292.1	5.0	18	40.9	75	36.3
87	01	09	16	15	005293.2	5.8	18	41.4	75	37.7
87	01	09	16	30	005292.4	5.5	18	41.9	75	39.0
87	01	09	16	45	005293.6	6.7	18	42.4	75	40.3
87	01	09	17	00	005290.6	6.9	18	42.8	75	41.7
87	01	09	17	30	005292.2	6.1	18	43.9	75	44.6
87	01	09	17	45	005290.3	5.2	18	44.5	75	46.1
87	01	09	18	00	005294.4	5.4	18	45.1	75	47.6
87	01	09	18	15	005291.1	7.1	18	45.7	75	49.2
87	01	09	18	30	005294.3	6.8	18	46.2	75	50.7
87	01	09	18	45	005292.4	6.8	18	46.7	75	52.1
87	01	09	19	00	005295.7	6.9	18	47.1	75	53.5
87	01	09	19	15	005297.2	6.5	18	47.7	75	54.8
87	01	09	19	30	005293.9	6.0	18	48.3	75	56.2
87	01	09	19	45	005289.6	6.2	18	48.8	75	57.5
87	01	09	20	00	005293.6	6.8	18	49.3	75	58.9
87	01	09	20	15	005289.9	6.7	18	49.8	76	00.4
87	01	09	20	30	005289.5	6.3	18	50.3	76	01.9
87	01	09	20	45	005291.0	6.1	18	50.9	76	03.5
87	01	09	21	00	005288.9	6.9	18	51.4	76	05.0
87	01	09	21	15	005294.3	6.9	18	51.9	76	06.4

YR	MO	DAY	TIME	LINE #	SHIPS	NAVIGATION								
						COURSE	SPD	FIX TIME	LATITUDE ± DEGREES	LATITUDE ± MINUTES	LONGITUDE ± DEGREES	LONGITUDE ± MINUTES	TYPE	QUAL.
8701092130005					294.9	6.6			18	52.5	76	07.8		
8701092145005					2924	6.5			18	53.0	76	09.3		
8701092200005					291.1	6.5			18	53.6	76	10.8		
8701092215005					291.5	6.8			18	54.1	76	12.2		
8701092230005					295.3	6.4			18	54.6	76	13.6		
8701092245005					2908	6.9			18	55.2	76	15.0		
8701092300005					2912	6.4			18	55.7	76	16.5		
8701092315005					291.3	6.9			18	56.2	76	18.0		
8701092330005					293.9	5.7			18	56.7	76	19.3		
8701092345005					2926	6.3			18	57.2	76	20.5		
8701100000005					291.3	6.4	X		18	57.7	76	21.8		
8701100015005					2920	6.1			18	58.1	76	23.1		
8701100030005					290.2	5.8			18	58.6	76	24.5		
8701100045005					291.4	6.1			18	59.1	76	25.7		
8701100100005					2807	6.0			18	59.5	76	27.0		
8701100115005					292.0	5.6			19	00.0	76	28.3		
8701100130005					289.8	5.6			19	00.4	76	29.6		
8701100145005					282	5.6			19	00.9	76	30.9		
8701100200005					291.1	6.0			19	01.4	76	32.1		
8701100215005					291.4	5.7			19	01.9	76	33.5		
8701100230005					287.8	6.0			19	02.4	76	34.8		
8701100245005					2824	5.1			19	02.8	76	36.1		
8701100300005					289.9	5.2			19	03.3	76	37.3		
8701100315005					291.3	5.5			19	03.8	76	38.7		
8701100330005					282.9	5.6			19	04.3	76	40.0		
8701100345005					291.8	5.5			19	04.8	76	41.4		
8701100400005					290.3	5.6			19	05.3	76	42.7		
8701100415005					291.4	5.7			19	05.8	76	44.1		
8701100430005					291.3	5.9			19	06.3	76	45.4		
8701100435005									19	06.4	76	45.9		

END LINE 5 AND START TO TURN LINE 6.

YR	MO	DAY	TIME	LINE #	SHIPS	COURSE	SPD	FIX TIME	NAVIGATION		TYPE	QUAL.
									LATITUDE ± DEGREES	LONGITUDE ± DEGREES		
87	01	19	0438	006	26875.9				19 06.5	76 48.2		
87	01	10	0445	006	26935.9				19 06.5	76 46.8		
87	01	10	0500	006	26826.1				19 06.5	76 48.6		
87	01	10	0515	006	268.06.0				19 06.5	76 49.8		
87	01	10	0530	006	270.35.9				19 06.5	76 51.2		
87	01	10	0545	006	269.46.4				19 06.5	76 52.7		
87	01	10	0600	006	268.36.4				19 06.5	76 54.1		
87	01	10	0615	006	266.56.9				19 06.5	76 55.6		
87	01	10	0630	006	268.06.0				19 06.5	76 57.1		
87	01	10	0645	006	269.06.7				19 06.5	76 58.5		
87	01	10	0700	006	269.66.8				19 06.5	77 00.0		
87	01	10	0715	006	270.56.9				19 06.5	77 01.5		
87	01	10	0730	006	268.66.2				19 06.5	77 03.0		
87	01	10	0745	006	269.15.9				19 06.5	77 04.5		
87	01	10	0800	006	269.06.3				19 06.5	77 06.0		
87	01	10	0823	006					19 06.5	77 08.3		
87	01	10	0835	007	124.86.2				19 06.5	77 07.7		
87	01	10	0845	007					19 05.5	77 05.2		
87	01	10	0900	007	114.75.9				19 05.5	77 05.4		
87	01	10	0916	007	103.55.8				19 05.1	77 04.1		
87	01	10	0930	007	112.85.9				19 04.6	77 02.8		
87	01	10	0945	007	110.06.4				19 04.1	77 01.5		
87	01	10	1000	007	110.16.1				19 03.6	77 00.1		
87	01	10	1015	007	112.36.3				19 03.1	76 58.8		
87	01	10	1030	007	111.56.2				19 02.6	76 57.5		
87	01	10	1045	007	111.86.6				19 02.1	76 56.1		
87	01	10	1100	007	111.66.1				19 01.6	76 54.8		
87	01	10	1115	007	109.05.1				19 01.1	76 53.5		
87	01	10	1130	007	112.56.5				19 00.7	76 52.2		
87	01	10	1145	007	112.26.3				19 00.1	76 50.9		

YR	MO	DAY	TIME	LINE #	SHIPS	COURSE	SPD	FIX TIME	NAVIGATION		TYPE	QUAL
									LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES		
8701101200007			200007	1	226.8				18 59.6	76 49.6		
8701101215007			215007	1	08.8 6.3				18 59.2	76 48.3		
8701101230007			230007	1	06.1 6.6				18 58.7	76 47.0		
8701101245007			245007	1	111.0 5.4				18 58.3	76 45.7		
8701101300007			300007	1	09.5 5.6				18 57.8	76 44.5		
8701101315007			315007	1	10.4 6.6				18 57.3	76 43.2		
8701101330007			330007	1	07.4 6.7				18 56.8	76 41.9		
8701101345007			345007	1	09.1 6.4				18 56.3	76 40.6		
8701101400007			400007	1	110.8 5.8				18 55.8	76 39.4		
8701101415007			415007	1	111.5 5.7				18 55.4	76 38.1		
8701101430007			430007	1	09.4 5.6				18 54.9	76 36.9		
8701101445007			445007	1	09.0 5.7				18 54.5	76 35.7		
8701101500007			500007	1	09.9 6.2				18 54.0	76 34.4		
8701101515007			515007	1	09.4 5.4				18 53.5	76 33.2		
8701101530007			530007	1	10.5 5.6				18 53.1	76 32.0		
8701101545007			545007	1	12.2 6.0				18 52.7	76 30.8		
8701101600007			600007	1	111.4 5.3				18 52.2	76 29.5		
8701101615007			615007	1	06.6 5.8				18 51.8	76 28.4		
8701101630007			630007	1	09.0 5.9				18 51.3	76 27.2		
8701101645007			645007	1	08.2 5.8				18 50.9	76 26.0		
8701101700007			700007	1	08.9 6.3				18 50.4	76 24.7		
8701101715007			715007	1	08.9 6.5				18 50.0	76 23.6		
8701101730007			730007	1	09.3 6.3				18 49.5	76 22.3		
8701101745007			745007	1	08.8 6.1				18 49.1	76 21.0		
8701101800007			800007	1	07.8 6.0				18 48.6	76 19.7		
8701101830007			830007	1	10.0 5.7				18 47.6	76 17.2		
8701101845007			845007	1	08.9 6.0				18 47.1	76 15.9		
8701101900007			900007	1	08.7 6.0				18 46.7	76 14.6		
8701101915007			915007	1	08.9 5.5				18 46.2	76 13.4		
8701101930007			930007	1	10.5 7.0				18 45.8	76 12.0		

YR	MO	DAY	TIME	LINE #	SHIPS	COURSE	SPD	FIX TIME	NAVIGATION		TYPE	QUAL.
									± DEGREES	± MINUTES		
87	01	10	1945	ΦΦ7	1094	6.4			18	45.3	76	10.8
87	01	10	2000	007	110.3	6.2			18	44.8	76	09.5
87	01	10	2015	007	104.0	5.0			18	44.3	76	08.2
87	01	10	2030	007	110.8	5.3			18	43.9	76	06.9
87	01	10	2045	007	111.5	6.0			18	43.4	76	05.7
87	01	10	2100	007	109.3	5.7			18	42.9	76	04.5
87	01	10	2115	007	109.4	6.0			18	42.5	76	03.2
87	01	10	2130	007	109.4	6.0			18	41.9	76	01.9
87	01	10	2145	007	110.1	5.3			18	41.5	76	00.6
87	01	10	2200	007	109.7	5.8			18	41.0	75	59.3
87	01	10	2215	007	110.0	6.4			18	40.5	75	57.9
87	01	10	2230	007	109.3	6.3			18	40.0	75	56.6
87	01	10	2245	007	109.9	5.7			18	39.5	75	55.3
87	01	10	2300	007	110.5	5.8			18	39.0	75	53.9
87	01	10	2315	007	110.6	5.8			18	38.4	75	52.4
87	01	10	2330	007	108.9	6.3			18	37.9	75	51.0
87	01	10	2345	007	110.8	6.5			18	37.5	75	49.6
87	01	11	00000000	7	110.9	5.4			18	36.9	75	48.1
87	01	11	001500	7	110.0	6.4			18	36.4	75	46.7
87	01	11	003000	7	112.6	6.8			18	35.8	75	45.2
87	01	11	004500	7	112.5	7.1			18	35.3	75	43.7
87	01	11	010000	7	111.1	6.3			18	34.7	75	42.3
87	01	11	011500	7	110.4	6.8			18	34.1	75	40.8
87	01	11	013000	7	111.2	6.6			18	33.5	75	39.3
87	01	11	014500	7	112.3	6.2			18	33.0	75	37.8
87	01	11	020000	7	110.2	6.6			18	32.5	75	36.3
87	01	11	021500	7	109.6	7.0			18	31.9	75	34.8
87	01	11	023000	7	110.8	5.6			18	31.4	75	33.4
87	01	11	024500	7	106.9	5.0			18	30.9	75	32.0
87	01	11	030000	7	110.6	5.8			18	30.4	75	30.7

YR	MO	DAY	TIME	LINE #	SHIPS	COURSE	SPD	FIX TIME	NAVIGATION		TYPE	QUAL
									± DEGREES	± MINUTES		
87	01	11	03	15	007	112.7	55		18	29.9	75	29.4
87	01	11	03	30	007	111.6	60		18	29.4	75	28.1
87	01	11	03	45	007	108.3	48		18	28.9	75	26.8
87	01	11	04	00	007	111.7	59		18	28.4	75	25.5
87	01	11	04	15	007	113	45.1		18	28.0	75	24.2
87	01	11	04	30	007	111	74.5		18	27.5	75	22.9
87	01	11	04	45	007	110.1	5.7		18	27.0	75	21.8
87	01	11	05	00	007	107.5	5.7		18	26.6	75	20.6
87	01	11	05	15	007	111.1	6.0		18	26.2	75	19.4
87	01	11	05	30	007	112.6	60		18	25.7	75	18.2
87	01	11	05	45	007	109.9	5.1		18	25.3	75	17.0
87	01	11	06	00	007	109.9	5.1		18	24.9	75	15.8
87	01	11	06	15	007	108.8	5.9		18	24.4	75	14.6
87	01	11	06	30	007	109.7	4.7		18	24.0	75	13.4
87	01	11	06	45	007	110.4	5.9		18	23.5	75	12.1
87	01	11	07	00	007	109.0	5.3		18	23.0	75	10.8
87	01	11	07	15	007	109.3	5.8		18	22.5	75	09.4
87	01	11	07	30	007	113.0	4.7		18	22.1	75	08.1
87	01	11	07	45	007	114.4	5.4		18	21.6	75	06.9
87	01	11	08	00	007	113.9	6.3		18	21.1	75	05.7
87	01	11	08	15	007	114.0	6.4		18	20.6	75	04.4
87	01	11	08	30	007	109.8	6.9		18	20.2	75	03.2
87	01	11	08	45	007	109.7	4.6		18	19.7	75	02.0
87	01	11	09	00	007	109.9	5.8		18	19.3	75	00.8
87	01	11	09	04	007				18	19.3	75	00.4
87	01	11	09	12	008				18	18.6	75	00.2
87	01	11	09	15	008				18	18.4	75	00.3
87	01	11	09	30	008				18	17.1	75	00.7
87	01	11	09	45	008				18	15.9	75	01.2
87	01	11	10	00	008				18	14.7	75	01.7

END OF LINE #7 STARTED TURN INTO LINE #8

BEGIN LINE #8 ON LINE
HELPED DANE MASSEY PULL OUT AIR GUN

YR	MO	DAY	TIME	LINE #	SHIPS	COURSE	SPD	FIX TIME	NAVIGATION		TYPE	QUAL.
									± DEGREES	± MINUTES		
87	01	15	1015	008	Z0265.2				18	13.6	75	02.2
87	01	11	1030	008	Z00.85.1				18	12.4	75	02.6
87	01	11	1045	008	Z01.85.2				18	11.3	75	03.1
87	01	11	1000	008	Z9835.0				18	10.2	75	03.5
2701111110008								
87	01	11	1111	1008					18	09.3	75	03.8
87	01	11	1121	009	Z8475.9				18	09.3	75	04.7
87	01	11	1130	009	Z85.85.9				18	09.5	75	05.5
87	01	11	1145	009	Z89.45.9				18	10.1	75	06.9
87	01	11	1200	009	Z87.65.6				18	10.6	75	08.3
87	01	11	1215	009	Z87.46.0				18	11.1	75	09.8
87	01	11	1230	009	Z92.56.2				18	11.6	75	11.3
87	01	11	1245	009	Z91.75.6				18	12.1	75	12.7
87	01	11	1300	009	Z92.45.8				18	12.7	75	14.2
87	01	11	1315	009	Z85.47.6				18	13.2	75	15.6
87	01	11	1330	009	Z99.27.4				18	13.7	75	17.1
87	01	11	1345	009	Z87.95.2				18	14.2	75	18.5
87	01	11	1400	009	Z92.05.4				18	14.7	75	19.8
87	01	11	1415	009	Z91.94.6				18	15.2	75	21.2
87	01	11	1430	009	Z95.34.9				18	15.6	75	22.6
87	01	11	1445	009	Z91.26.8				18	16.2	75	24.0
87	01	11	1500	009	Z89.55.6				18	16.7	75	25.4
87	01	11	1515	009	Z88.35.9				18	17.2	75	26.8
87	01	11	1530	009	Z90.85.9				18	17.7	75	28.2
87	01	11	1545	009	Z90.05.4				18	18.2	75	29.6
87	01	11	1600	009	Z92.16.5				18	18.6	75	31.0
87	01	11	1615	009	Z91.16.3				18	19.2	75	32.4
87	01	11	1630	009	Z90.37.3				18	19.7	75	33.9
87	01	11	1645	009	Z91.16.2				18	20.3	75	35.4
87	01	11	1700	009	Z94.46.6				18	20.8	75	37.0

YR	MO	DAY	TIME	LINE #	SHIPS	COURSE	SPD	NAVIGATION		TYPE	QUAL
								FIX TIME	LATITUDE ± DEGREES ± MINUTES		
8701111	1	7	30009	75	009						.
8701111	1	730009	290.5	7.7				18 22.0	75 40.1		.
8701111	1	745009	287.4	7.8				18 22.6	75 41.8		
8701111	1	80009	292.3	7.0				18 23.1	75 43.3		
8701111	1	815009	2928.6	7.7				18 23.7	75 44.8		
8701111	1	830009	290.0	6.4				18 24.2	75 46.2		
8701111	1	845009	286.2	6.2				18 24.6	75 47.5		
8701111	1	90009	284.2	5.9				18 25.1	75 48.9		
8701111	1	915009	291.3	6.0				18 25.6	75 50.3		
8701111	1	930009	291.5	6.6				18 26.1	75 51.8		
8701111	1	945009	289.9	6.0				18 26.7	75 53.2		
8701111	2	00009	284.1	6.9				18 27.2	75 54.6		
8701111	2	015009	290.0	6.1				18 27.6	75 56.0		
8701111	2	030009	293.5	6.0				18 28.2	75 57.4		
8701111	2	045009	290.4	5.4				18 28.7	75 58.7		
8701111	2	100009	290.1	5.1				18 29.1	76 00.0		
8701111	2	115009	294.1	6.3				18 29.6	76 01.3		
8701111	2	130009	289.3	6.6				18 30.1	76 02.5		
8701111	2	145009	290.4	6.3				18 30.5	76 03.8		
8701111	2	200009	291.6	5.3				18 30.9	76 05.1		
8701111	2	215009	292.2	5.6				18 31.5	76 06.5		
8701111	2	230009	2928.6	3				18 31.9	76 07.8		
8701111	2	245009	289.5	6.7				18 32.5	76 09.2		
8701111	2	300009	290.0	6.3				18 32.9	76 10.6		
8701111	2	315009	288.9	6.2				18 33.4	76 11.9		
8701111	2	330009	289.4	6.3				18 33.9	76 13.3		
8701111	2	345009	290.2	6.1				18 34.4	76 14.7		
8701111	2	400009	288.1	6.1				18 34.9	76 16.0		
8701111	2	40015009	289.3	6.4				18 35.4	76 17.4		
8701111	2	40030009	292.3	6.6				18 35.9	76 18.8		

YR	MO	DAY	TIME	LINE #	SHIPS	COURSE	SPD	FIX TIME	NAVIGATION		TYPE	QUAL.
									± DEGREES	± MINUTES		
87	01	12	0045	009	287.4	5.8			18	36.4	76	20.1
87	01	12	0100	009	290.3	5.5			18	36.8	76	21.5
87	01	12	0115	009	293.7	7.0			18	37.4	76	22.9
87	01	12	0130	009	290.2	7.0			18	37.8	76	24.3
87	01	12	0145	009	2905	6.5			18	38.4	76	25.8
87	01	12	0200	009	2942	7.4			18	38.9	76	27.2
87	01	12	0215	009	292.3	6.5			18	39.4	76	28.7
87	01	12	0230	009	2948	6.2			18	39.9	76	30.1
87	01	12	0245	009	293.5	6.5			18	40.4	76	31.6
87	01	12	0303	009	284.0	7.5			18	41.0	76	33.0
87	01	12	0315	009	292.5	7.1			18	41.5	76	34.5
87	01	12	0330	009	291.7	6.7			18	42.0	76	36.0
87	01	12	0345	009	289.2	7.4			18	42.6	76	37.5
87	01	12	0400	009	289.4	6.6			18	43.1	76	39.0
87	01	12	0415	009	291.5	6.5			18	43.7	76	40.5
87	01	12	0430	009	288.8	6.9			18	44.2	76	42.0
87	01	12	0445	009	280.7	7.6			18	44.7	76	43.4
87	01	12	0500	009	294.4	6.9			18	45.2	76	44.9
87	01	12	0515	009	289.6	7.0			18	45.8	76	46.4
87	01	12	0530	009	288.8	7.0			18	46.3	76	47.9
87	01	12	0545	009	290.0	6.2			18	46.9	76	49.3
87	01	12	0600	009	290.5	6.0			18	47.4	76	50.8
87	01	12	0615	009	289.2	6.7			18	47.9	76	52.3
87	01	12	0630	009	290.6	7.2			18	48.5	76	53.8
87	01	12	0645	009	290.4	5.5			18	49.0	76	55.3
87	01	12	0700	009	289.3	6.5			18	49.5	76	56.8
87	01	12	0715	009	287.9	6.4			18	50.0	76	58.2
87	01	12	0730	009	289.6	6.1			18	50.5	76	59.5
87	01	12	0745	009	289.6	6.2			18	51.0	76	01.0
87	01	12	0800	009	290.9	5.9			18	51.5	77	02.4

YR	MO	DAY	TIME	SHIPS			FIX TIME	NAVIGATION		QUAL.	
				LINE #	COURSE	SPD		± DEGREES	± MINUTES	LONGITUDE	
87	01	12	081	5009	288.6	6.4		18	52.0	77 03.8	
87	01	12	083	0009	287.6	6.6		18	52.5	77 05.2	
87	01	12	084	5009	290.2	5.8		18	53.1	77 06.7	
87	01	12	090	00009	289.3	5.9		18	53.6	77 08.1	
87	01	12	091	5009	289.6	6.6		18	54.1	77 09.6	
87	01	12	093	0009	287.3	6.5		18	54.6	77 11.0	
87	01	12	094	5009	287.7	6.4		18	55.1	77 12.5	
87	01	12	100	00009	290.5	6.3		18	55.6	77 13.9	
87	01	12	101	5009	287.4	5.8		18	56.1	77 15.3	
87	01	12	103	0009	289.7	5.6		18	56.6	77 16.7	
87	01	12	104	5009	289.5	5.6		18	57.1	77 18.1	
87	01	12	110	0009	291.5	6.0		18	57.6	77 19.5	
87	01	12	111	5009	290.6	6.2		18	58.1	77 20.8	
87	01	12	113	0009	291.5	6.5		18	58.7	77 22.2	
87	01	12	114	5009	289.1	5.8		18	59.1	77 23.6	
87	01	12	120	0009	291.2	6.3		18	59.6	77 24.9	
87	01	12	121	5009	290.2	5.8		19	00.1	77 26.4	
87	01	12	123	0009	288.3	5.6		19	00.6	77 27.8	
87	01	12	124	5009	290.8	6.0		19	01.1	77 29.1	
87	01	12	130	0009	294.6	5.4		19	01.5	77 30.4	
87	01	12	131	5009	294.8	6.7		19	02.0	77 31.8	
87	01	12	133	0009	290.4	6.0		19	02.5	77 33.1	
87	01	12	134	5009	295.5	3.3		19	03.0	77 34.4	
87	01	12	140	0009	287.8	6.6		19	03.5	77 35.8	
87	01	12	141	5009	291.2	5.8		19	03.9	77 37.1	
87	01	12	143	0009	291.6	6.1		19	04.4	77 38.4	
87	01	12	144	5009				19	04.9	77 39.7	
87	01	12	1446	0009				19	04.9	77 39.9	
87	01	12	145	0010				19	05.2	77 40.0	

YR	MO	DAY	TIME	LINE #	SHIPS	FIX TIME	NAVIGATION				QUAL.
							LATITUDE ± DEGREES	LATITUDE ± MINUTES	LONGITUDE ± DEGREES	LONGITUDE ± MINUTES	
870112143000929A							19 03.9	77 37.1			
870112141							.	.			
8701121500090359.6							19 05.9	77 40.0			
870112151509A							19 07.2	77 39.9			
870112152509A							19 08.2	77 40.0			
870112153009A87.6							19 08.4	77 39.7			
870112154509A91.5							19 08.3	77 38.2			
870112160009A94.7							19 08.3	77 36.7			
870112161509A93.8							19 08.2	77 35.3			
870112163009A94.7							19 08.1	77 33.9			
870112164509A95.2							19 08.0	77 32.6			
870112170009A93.5							19 07.9	77 31.2			
870112173009A95.0							19 07.8	77 28.6			
870112174509A92.5							19 07.7	77 27.4			
870112180009A94.9							19 07.6	77 26.1			
870112181509A90.9							19 07.6	77 24.8			
870112183009A89.9							19 07.5	77 23.4			
870112190009A93.8							19 07.3	77 20.9			
870112191509A95.7							19 07.2	77 19.6			
870112193009A95.0							19 07.1	77 18.3			
870112194509A93.2							19 07.0	77 16.9			
870112200009A94.1							19 07.0	77 15.5			
870112201509A96.6							19 06.9	77 14.1			
870112203009A92.2							19 06.8	77 12.7			
870112204509A95.8							19 06.7	77 11.2			
870112210009A92.8							19 06.6	77 09.7			
870112211209A							19 06.5	77 08.5			
870112211809B							19 06.1	77 08.5			
870112213009B224.3							19 05.4	77 09.3			
870112214509B224.0							19 04.4	77 10.4			

YR	MO	DAY	TIME	LINE #	SHIPS	FIX TIME	NAVIGATION		TYPE	QUAL.
							Latitude ± DEGREES	Longitude ± Minutes		
87	01	12	2300							.
87	01	12	235809B				19 06.5	77 07.9		
87	01	13	001509B	225.8	50		19 05.7	77 08.9		
87	01	13	003009B	223.6	4.9		19 05.0	77 09.7		
87	01	13	004509B	225.4	5.0		19 04.4	77 10.4		
87	01	13	010009B	221.6	4.8		19 03.7	77 11.1		
87	01	13	011509B	223.2	4.8		19 02.9	77 11.8		
87	01	13	013009B	226.5	5.1		19 02.3	77 12.6		
87	01	13	014509B	223.0	5.2		19 01.6	77 13.4		
87	01	13	020009B	222.4	4.8		19 00.9	77 14.1		
87	01	13	021509B	226.3	5.1		19 00.2	77 14.9		
87	01	13	023009B	223.2	4.7		18 59.4	77 15.7		
87	01	13	024509B	225.8	4.8		18 58.7	77 16.5		
87	01	13	030009B	226.6	4.7		18 58.0	77 17.4		
87	01	13	031509B	226.2	5.0		18 57.2	77 18.2		
87	01	13	033009B	222.2	5.6		18 56.5	77 19.1		
87	01	13	034509B	226.6	5.7		18 55.7	77 19.9		
87	01	13	040009B	224.9	5.2		18 54.9	77 20.8		
87	01	13	041509B	227.5	3.6		18 54.1	77 21.7		
87	01	13	043009B	225.1	4.7		18 53.3	77 22.5		
87	01	13	043309B				18 53.1	77 22.8		
87	01	13	043809C				18 53.1	77 23.1		
87	01	13	044509C	290.7	5.4		18 53.4	77 23.7		
87	01	13	050009C	293.5	5.5		18 53.9	77 25.0		
87	01	13	051509C	295.4	5.9		18 54.5	77 26.3		
87	01	13	053009C	296.3	5.3		18 55.1	77 27.5		
87	01	13	060009C	299.0	5.3		18 56.2	77 29.9		
87	01	13	060509C	296.8	5.8		18 56.8	77 31.1		
87	01	13	063009C	296.9	5.9		18 57.4	77 32.3		
87	01	13	064509C	296.3	6.2		18 57.9	77 33.4		

YR	MO	DAY	TIME	LINE #	SHIPS	NAVIGATION						
						FIX TIME	± DEGREES	± MINUTES	LATITUDE	LONGITUDE	TYPE	QUAL.
87	01	13	07 00 09	C	300.0	5.7			18 58 .5	77 34 .5		
87	01	13	07 15 09	C	301.2	5.6			18 59 .0	77 35 .6		
87	01	13	07 30 09	C	295.2	4.6			18 59 .5	77 36 .6		
87	01	13	07 45 09	C	298.1	5.4			19 00 .0	77 37 .7		
87	01	13	08 00 09	C	304.9	5.3			19 00 .4	77 38 .7		
87	01	13	08 15 09	C	296.9	3.6			19 00 .9	77 39 .6		
87	01	13	08 30 09	C	301.0	4.4			19 01 .4	77 40 .6		
87	01	13	08 45 09	C	292.0	5.1			19 02 .0	77 41 .7		
87	01	13	09 00 09	C	300.0	5.0			19 02 .5	77 42 .9		
87	01	13	09 09 09	C					19 02 .8	77 43 .6		
*87	01	13	09 16 09	D					19 02 .5	77 44 .0		
87	01	13	09 30 09	D	176.1	6.7			19 01 .3	77 44 .0		
87	01	13	09 45 09	D	178.4	7.0			18 59 .9	77 44 .0		
87	01	13	10 00 09	D	178.5	6.5			18 58 .5	77 44 .0		
87	01	13	10 15 09	D					.	.		
*87	01	13	10 07 09	D					18 57 .9	77 44 .0		
*87	01	13	10 14 09	D					18 57 .4	77 43 .7		
87	01	13	10 30 09	D	113.9	5.0			18 56 .8	77 42 .5		
87	01	13	10 45 09	D	112.2	5.8			18 56 .3	77 41 .4		
87	01	13	11 00 09	E	112.4	4.9			18 55 .8	77 40 .2		
87	01	13	11 15 09	E	113.9	4.7			18 55 .4	77 39 .1		
87	01	13	11 30 09	E	112.5	5.6			18 54 .9	77 37 .9		
87	01	13	11 45 09	E	110.0	5.6			18 54 .3	77 36 .9		
87	01	13	12 00 09	E	111.3	7.1			18 53 .9	77 35 .8		
87	01	13	12 15 09	E	116.3	5.1			18 53 .4	77 34 .7		
87	01	13	12 30 09	E	113.6	4.4			18 52 .9	77 33 .6		
87	01	13	12 45 09	E	116.1	4.5			18 52 .5	77 32 .6		
87	01	13	13 00 09	E	115.0	6.3			18 51 .9	77 31 .6		
87	01	13	13 15 09	E	114.4	3.4			18 51 .5	77 30 .5		
87	01	13	13 30 09	E	115.2	4.5			18 51 .0	77 29 .5		

YR	MO	DAY	TIME	LINE #	SHIPS	COURSE	SPD	FIX TIME	NAVIGATION				QUAL.
									LATITUDE		LONGITUDE		
± DEGREES ± MINUTES		± DEGREES ± MINUTES											
870113134509E	116.8	4.0							18 50.6		77 28.5		
870113140009E	115.6	5.7							18 50.1		77 27.4		
870113141509E									.		.		
*870113141409E									18 49.7		77 26.5		
*870113142109E									18 49.6		77 26.8		
870113143009F	268.8	5.3							18 49.6		77 27.6		
870113144509F	264.9	4.9							18 49.5		77 28.8		
870113150009F	268.4	5.1							18 49.5		77 30.1		
870113151509F	269.3	5.0							18 49.4		77 31.4		
870113153009F	269.9	5.0							18 49.4		77 32.8		
870113154509F	270.9	5.0							18 49.4		77 34.1		
870113160009F	267.3	5.1							18 49.4		77 35.4		
870113161509F	270.0	5.1							18 49.4		77 36.8		
870113161509F	271.5	5.2							18 49.4		77 38.2		
870113164509F	271.3	5.3							18 49.4		77 39.5		
870113170009F	270.1	5.3							18 49.4		77 40.8		
870113171509F	272.4	5.4							18 49.5		77 42.4		
870113173009F	267.3	5.2							18 49.5		77 43.8		
870113174509F	275.9	5.1							18 49.4		77 45.2		
870113175109F									18 49.5		77 45.8		
8701131755010									18 49.4		77 46.0		
8701131800010220.1	5.9								18 49.0		77 46.4		
8701131815010218.9	5.9								18 47.9		77 47.4		
8701131830010217.6	5.8								18 46.7		77 48.3		
8701131845010218.1	5.7								18 45.6		77 49.2		
8701131900010218.5	5.6								18 44.5		77 50.1		
8701131915010217.3	5.6								18 43.4		77 51.1		
8701131930010217.5	5.6								18 42.3		77 51.9		
8701131945010218.0	5.4								18 41.2		77 52.8		
8701132000010217.4	5.6								18 40.2		77 53.7		

YR	MO	DAY	TIME	LINE #	SHIPS		FIX TIME	NAVIGATION		TYPE	QUAL.
					COURSE	SPD		± DEGREES	± MINUTES	LONGITUDE	
87	01	13	2015	010	2167	4.8		18	39.3	77 54.4	
87	01	13	2032	010	219.2	5.0		18	38.1	77 55.4	
87	01	13	2036	011	2664	4.8		18	38.0	77 55.6	
87	01	13	2045	011	268.1	6.1		18	38.0	77 56.5	
87	01	13	2100	011	270.5	6.1		18	38.0	77 58.1	
*87	01	13	2109	011				18	38.1	77 59.2	
*87	01	13	2120	012				18	38.9	77 59.6	
87	01	13	2130	012	331.1	5.3		18	39.6	77 59.9	
87	01	13	2145	012	332.4	5.4		18	40.8	78 00.7	
87	01	13	2200	012	331.9	5.3		18	41.9	78 01.4	
*87	01	13	2208	012	342.3	5.2		18	42.7	78 01.8	
*87	01	13	2215	013	261.5	5.8		18	42.9	78 02.4	
87	01	13	2230	013	261.6	6.2		18	42.7	78 03.9	
87	01	13	2245	013	261.7	6.1		18	42.5	78 05.5	
87	01	13	2300	013	258.4	6.3		18	42.2	78 07.1	
87	01	13	2315	013	261.4	6.2		18	41.9	78 08.7	
87	01	13	2330	013	261.3	6.1		18	41.7	78 10.3	
87	01	13	2345	013	2640	6.2		18	41.5	78 11.9	
87	01	14	000000	13	262.7	6.1		18	41.3	78 13.6	
87	01	14	001501	13	261.2	6.2		18	41.0	78 15.2	
87	01	14	003001	13	261.0	6.4		18	40.8	78 16.8	
87	01	14	004501	13	259.9	6.4		18	40.5	78 18.5	
87	01	14	010001	13	261.7	6.3		18	40.3	78 20.1	
87	01	14	011501	13	260.2	6.4		18	40.0	78 21.7	
87	01	14	013001	13	263.3	6.3		18	39.7	78 23.4	
87	01	14	014501	13	259.7	6.0		18	39.5	78 25.0	
87	01	14	020001	13	259.2	6.0		18	39.2	78 26.6	
87	01	14	021501	13	260.7	6.0		18	39.0	78 28.1	
87	01	14	023001	13	261.1	5.9		18	38.8	78 29.7	
87	01	14	024501	13	259.0	5.9		18	38.5	78 31.2	

TAPE #	START END	COMMENTS AND OBSERVATIONS	PAGE _____
		R. O. Line 10	
		S. O. Line 11	
		E. O. Line 11	
		S.O. Line 12	
		END OF LINE #12 START TURN INTO LINE #13	
		START LINE #13 ON LINE.	
		J.D. 014 -	

YR	MO	DAY	TIME	LINE #	SHIPS	FIX TIME	NAVIGATION		TYPE	QUAL.
							Latitude ± DEGREES	Longitude ± DEGREES		
8701140300013260759							18 38.3	78 32.7		
8701140315013260556							18 38.1	78 34.2		
*8701140322013							18 37.9	78 35.0		
*8701140330014247.757							18 37.7	78 35.6		
8701140345014246256							18 37.2	78 37.0		
8701140400014245057							18 36.6	78 38.4		
8701140415014249.857							18 36.1	78 39.8		
8701140430014246.157							18 35.6	78 41.1		
8701140445014247.657							18 35.0	78 42.5		
8701140500014247.858							18 34.5	78 43.9		
8701140515014248.357							18 34.0	78 45.4		
8701140530014247.256							18 33.5	78 46.9		
8701140545014246.557							18 32.9	78 48.2		
8701140600014249.156							18 32.4	78 49.6		
8701140615014246.558							18 31.9	78 51.0		
8701140630014249.059							18 31.3	78 52.4		
8701140645014247.359							18 30.8	78 53.9		
8701140700014246.659							18 30.2	78 55.3		
8701140715014247.361							18 29.6	78 56.8		
8701140730014247.661							18 29.1	78 58.3		
8701140745014250.161							18 28.5	78 59.8		
8701140800014245.861							18 28.0	79 01.3		
8701140815014247.562							18 27.4	79 02.8		
8701140830014247.563							18 26.8	79 04.3		
8701140845014249.463							18 26.2	79 05.8		
8701140900014248.162							18 25.6	79 07.3		
8701140915014249.360							18 25.1	79 08.8		
8701140930014247.060							18 24.5	79 10.3		
8701140945014246.959							18 23.9	79 11.8		
8701140000014251.658							18 23.4	79 13.2		

YR	MO	DAY	TIME	LINE #	SHIPS	COURSE	SPD	FIX TIME	NAVIGATION				TYPE	QUAL.
									LATITUDE		LONGITUDE			
									± DEGREES	± MINUTES	± DEGREES	± MINUTES		
87011410150142489									18	22.8	79	14.6		
8701141030014246.6									18	22.3	79	16.0		
8701141045014247.6									18	21.7	79	17.5		
8701141100014250.2									18	21.2	79	18.9		
8701141115014245.7									18	20.6	79	20.4		
8701141130014244										
*8701141128014247.9									18	20.1	79	21.7		
*8701141134015318.5									18	20.2	79	22.2		
8701141145015316.9									18	20.9	79	22.9		
8701141200015318.4									18	21.9	79	23.9		
8701141215015316.6									18	22.9	79	24.8		
8701141230015318.6									18	23.8	79	25.8		
8701141245015318.8									18	24.8	79	26.8		
8701141300015318.9									18	25.8	79	27.7		
8701141305015317.9									18	26.6	79	28.6		
8701141330015316.3									18	27.6	79	29.6		
8701141345015318.5									18	28.6	79	30.6		
8701141400015316.8									18	29.6	79	31.6		
8701141415015316.8									18	30.5	79	32.5		
8701141430015319.6									18	31.4	79	33.4		
8701141445015318.2									18	32.4	79	34.4		
8701141500015316.5									18	33.5	79	35.4		
8701141515015317.9									18	34.5	79	36.5		
8701141530015316.9									18	35.5	79	37.5		
8701141545015319.3									18	36.6	79	38.6		
8701141600015316.0									18	37.7	79	39.7		
8701141615015318.0									18	38.8	79	40.8		
8701141630015318.0									18	39.9	79	41.9		
8701141645015318.4									18	41.4	79	43.0		
87011500										

END LINE # 14 START TURN INTO LINE # 15

BEGIN LINE #15 ON LINE

YR	MO	DAY	TIME	LINE #	SHIPS	FIX TIME	NAVIGATION		TYPE	QUAL.
							Latitude ± DEGREES	Longitude ± DEGREES		
87	01	14	1700	015	318.763		18 42.2	79 44.1		
87	01	14	1715	015	316.16.2		18 43.3	79 45.2		
87	01	14	1730	015	316.46.3		18 44.5	79 46.4		
87	01	14	1745	015	318.46.4		18 45.6	79 47.6		
87	01	14	1800	015	317.06.3		18 46.8	79 48.8		
87	01	14	1815	015	317.66.2		18 48.0	79 50.0		
87	01	14	1830	015	314.86.3		18 49.1	79 51.0		
87	01	14	1845	015	316.36.5		18 50.3	79 52.2		
87	01	14	1900	015	317.46.4		18 51.4	79 53.4		
87	01	14	1930	015	317.06.2		18 53.7	79 55.7		
87	01	14	1945	015	318.86.2		18 54.8	79 56.8		
87	01	14	2000	015	317.26.4		18 56.0	79 57.9		
87	01	14	2015	015	314.66.5		18 57.2	79 59.1		
87	01	14	2030	015	315.85.5		18 58.2	80 00.2		
87	01	14	2045	015	318.35.8		18 59.3	80 01.2		
87	01	14	2100	015	316.95.8		19 00.3	80 02.3		
87	01	14	2115	015	316.35.8		19 01.4	80 03.4		
87	01	14	2130	015	316.75.9		19 02.4	80 04.4		
87	01	14	2145	015	316.85.9		19 03.5	80 05.5		
87	01	14	2200	0015	318.05.8		19 04.6	80 06.6		
87	01	14	2215	015	316.25.9		19 05.7	80 07.6		
87	01	14	2230	0015	317.06.0		19 06.7	80 08.7		
87	01	14	2245	0015	315.55.7		19 07.8	80 09.8		
87	01	14	2300	0015	317.65.7		19 08.8	80 10.8		
87	01	14	2315	015	317.76.0		19 09.9	80 11.9		
87	01	14	2330	0015	313.25.8		19 11.0	80 12.9		
87	01	14	2345	015	316.25.9		19 12.0	80 14.0		
87	01	15	000000	15	316.56.1		19 13.1	80 15.1		
87	01	15	00015	15			.	.		
							.	.		

				SHIPS		NAVIGATION							
YR	MO	DAY	TIME	LINE #	COURSE	SPD	FIX TIME	LATITUDE ± DEGREES ± MINUTES		LONGITUDE ± DEGREES ± MINUTES		TYPE	QUAL.
*8701150006015	315.9	6.1						19	13.7	80	85.7		
8701150012016	180.4	3.9						19	13.7	80	16.1		
8701150015016								19	13.5	80	16.1		
8701150030016	192.8	4.9						19	12.4	80	16.5		
8701150045016	193.6	5.2						19	11.2	80	16.8		
8701150000016	194.0	5.1						19	09.9	80	17.0		
8701150115016	193.7	5.3						19	08.7	80	17.5		
8701150130016	193.8	5.1						19	07.3	80	17.8		
8701150145016	194.1	5.1						19	06.1	80	18.2		
8701150200016	194.0	5.0						19	04.8	80	18.5		
8701150215016	193.9	5.3						19	03.6	80	18.9		
8701150230016	190.0	5.6						19	02.3	80	19.2		
8701150245016	193.6	5.7						19	01.0	80	19.6		
8701150300016	195.1	5.6						18	59.6	80	19.9		
8701150315016	194.1	5.6						18	58.3	80	20.3		
8701150330016	196.1	5.6						18	56.9	80	20.7		
8701150345016	195.1	5.8						18	55.5	80	21.1		
8701150400016	192.6	5.9						18	54.1	80	21.5		
8701150415016	195.9	5.9						18	52.7	80	21.9		
8701150430016	194.0	5.2						18	51.4	80	22.3		
8701150445016	197.1	5.6						18	50.1	80	22.6		
8701150452016								18	49.4	80	22.8		
8701150456017								18	49.4	80	23.2		
8701150500017	328.8	6.2						18	49.7	80	23.3		
8701150515017	327.8	6.1						18	51.0	80	24.2		
8701150530017	330.0	5.6						18	52.3	80	25.0		
8701150545017	332.1	5.1						18	53.6	80	25.7		
8701150600017	331.8	5.4						18	54.8	80	26.4		
8701150615017	329.9	5.7						18	56.0	80	27.1		
8701150630017	332.4	5.8						18	57.3	80	27.8		

YR	MO	DAY	TIME	LINE #	SHIPS	COURSE	SPD	NAVIGATION				TYPE	QUAL
								FIX TIME	± DEGREES	± MINUTES	LONGITUDE		
8701	150645	017	33015.7						18	58.5	80 28.6		
8701	150700	017	33135.7						18	59.8	80 29.3		
8701	150715	017	33185.3						19	01.0	80 30.0		
8701	150730	001	733035.5						19	02.2	80 30.7		
8701	150745	017	33185.5						19	03.4	80 31.4		
8701	150800	017	33265.6						19	04.6	80 32.1		
8701	150815	017	33055.5						19	05.8	80 32.8		
8701	150830	001	733145.7						19	07.1	80 33.6		
8701	150845	017	33135.9						19	08.3	80 34.3		
8701	150900	001	733265.9						19	09.6	80 35.1		
8701	150915	017	33165.9						19	10.9	80 35.8		
8701	150930	017	33196.0						19	12.3	80 36.6		
8701	150945	017	33196.0						19	13.6	80 37.4		
8701	151000	001	733156.1						19	14.9	80 38.1		
8701	151015								.	.	.		
8701	151015	01501	733206.3						19	16.2	80 38.9		
8701	151030	001	733346.3						19	17.6	80 39.8		
8701	151036	018291.3	6.5						19	17.5	80 40.2		
8701	151045	018294.4	6.3						19	16.6	80 40.6		
8701	151100	001	8203.2	6.3					19	15.2	80 41.3		
8701	151115	018203.0	6.2						19	13.8	80 41.9		
8701	151130	001	8202.5	6.1					19	12.3	80 42.6		
8701	151145	018205.9	6.3						19	10.8	80 43.3		
8701	151200	001	8204.2	6.4					19	09.4	80 43.9		
8701	151215	018204.4	6.1						19	07.9	80 44.6		
8701	151230	001	8205.2	5.7					19	06.5	80 45.2		
8701	151245	018206.5	6.0						19	05.2	80 45.9		
8701	151300	001	8203.8	6.2					19	03.8	80 46.5		
8701	151315	018203.2	5.2						19	02.4	80 46.9		
8701	151330	001	8204.0	5.8					19	01.0	80 47.7		

COMMENTS AND OBSERVATIONS

PAGE _____

END LINE #17 START TURN INTO
LINE #18
BEGIN LINE #18 ON LINE

YR	MO	DAY	TIME	LINE #	SHIPS	FIX TIME	NAVIGATION		TYPE	QUAL.
							± DEGREES	± MINUTES		
87	01	15	134501820406.0				18	59.7	80	48.3
87	01	15	140001820346.1				18	58.3	80	49.0
87	01	15	141501820316.0				18	57.0	80	49.6
87	01	15	143001820236.0				18	55.6	80	50.2
X	87	01	151445018265.04.9				18	54.2	80	50.8
X	87	01	151449019				18	54.2	80	51.1
87	01	15	150001931245.4				18	54.9	80	51.8
87	01	15	151501931525.7				18	55.9	80	52.9
87	01	15	153001931625.8				18	56.9	80	53.9
87	01	15	154501931525.7				19	58.0	80	55.0
87	01	15	160001931835.7				18	59.0	80	56.0
87	01	15	161501931535.6				19	00.0	80	57.0
87	01	15	1630019316.65.9				19	01.1	80	58.1
87	01	15	164501931605.0				19	02.2	80	59.2
87	01	15	170001931496.2				19	03.3	81	00.3
87	01	15	1715019316.56.3				19	04.5	81	01.5
87	01	15	1730019316.16.5				19	05.6	81	02.6
87	01	15	1745019316.26.8				19	06.9	81	03.9
87	01	15	1800019318.36.9				19	08.1	81	05.1
87	01	15	1815019317.17.0				19	09.4	81	06.4
87	01	15	18290193347.4				19	10.7	81	07.7
87	01	15	1834020191.84.2				19	10.6	81	08.1
87	01	15	1845020198.75.2				19	09.7	81	08.3
87	01	15	1900020191.16.2				19	08.2	81	08.7
87	01	15	1915020191.86.3				19	06.7	81	09.1
87	01	15	1930020189.36.5				19	05.2	81	09.4
87	01	15	1945020194.57.0				19	03.5	81	09.8
87	01	15	2000020200.15.8				19	01.9	81	10.2
87	01	15	2015020195.55.5				19	00.5	81	10.6
87	01	15	2030020195.85.7				18	59.2	81	11.0

YR	MO	DAY	TIME	LINE #	SHIPS	NAVIGATION								
						COURSE	SPD	FIX TIME	LATITUDE		LONGITUDE		TYPE	QUAL.
									± DEGREES	± MINUTES	± DEGREES	± MINUTES		
87	01	15	20 45 020	1	91.8	57			18	57.8	81	11.3		
87	01	15	21 00 020	1	97.3	5.6			18	56.4	81	11.6		
87	01	15	21 15 020	1	96.3	5.8			18	54.9	81	12.0		
87	01	15	21 30 020	1	93.4	5.8			18	53.5	81	12.4		
87	01	15	21 45 020	1	92.6	5.4			18	52.1	81	12.7		
87	01	15	21 52 020	1	92.9	5.8			18	51.4	81	12.9		
87	01	15	21 58 021	1	323.7	4.3			18	51.3	81	13.2		
87	01	15	22 00 021	1	321.4	4.6			18	51.5	81	13.3		
87	01	15	22 15 021	1	322.6	5.0			18	52.4	81	14.1		
87	01	15	22 30 021	1	320.7	5.4			18	53.4	81	14.9		
87	01	15	22 45 021	1	324.1	5.3			18	54.5	81	15.4		
87	01	15	23 00 021	1	324.3	5.1			18	55.5	81	16.7		
87	01	15	23 15 021	1	323.4	5.2			18	55.5	81	17.5		
87	01	15	23 30 021	1	322.7	5.0			18	57.6	81	18.3		
87	01	15	23 45 021	1	320.9	5.0			18	58.6	81	19.2		
87	01	16	00 00 002	1	322.4	5.2			18	59.7	81	20.0		
87	01	16	00 15 021	1	322.4	5.4			19	00.7	81	20.9		
87	01	16	00 30 021	1	322.8	5.6			19	01.8	81	21.7		
87	01	16	00 45 021	1	322.0	5.9			19	02.9	81	22.6		
87	01	16	01 00 021	1	322.7	6.1			19	04.1	81	23.6		
87	01	16	01 15 021	1	322.4	6.2			19	05.3	81	24.5		
87	01	16	01 30 021	1	321.8	6.2			19	06.5	81	25.5		
87	01	16	01 45 021	1	323.4	6.4			19	07.7	81	26.5		
87	01	16	02 00 021	1	320.5	6.4			19	09.0	81	27.5		
87	01	16	02 15 021	1	323.4	6.1			19	10.2	81	28.6		
87	01	16	02 30 021	1	321.9	6.1			19	11.5	81	29.5		
87	01	16	02 45 021						19	11.6	81	29.7		
87	01	16	02 57 022	1	890	58			19	11.4	81	30.0		
87	01	16	02 45 022	1	889	5.7			19	10.6	81	30.1		
87	01	16	03 00 022	1	87.5	5.8			19	09.2	81	30.3		

TAPE #	START END	COMMENTS AND OBSERVATIONS	PAGE
		END OF LINE # 20. START TURN INTO LINE # 21.	
		START of LINE # 21 ON LINE	
		JD. 016	
		END of LINE # 21. START TURN INTO LINE 22	
		BEGIN LINE 22	

YR	MO	DAY	TIME	LINE #	SHIPS	COURSE	SPD	FIX TIME	NAVIGATION				TYPE	QUAL.
									LATITUDE		LONGITUDE			
± DEGREES ± MINUTES		± DEGREES ± MINUTES												
87	01	16	03	1	50	22	18	78	6.0	19	07.7	81	30.4	
87	01	16	03	30	02	2	18	55	6.2	19	06.2	81	30.6	
87	01	16	03	45	02	2	18	74	5.8	19	04.7	81	30.8	
87	01	16	04	00	02	2	18	63	6.2	19	03.1	81	31.0	
87	01	16	04	15	02	2	18	65	6.0	19	01.6	81	31.7	
87	01	16	04	30	02	2	18	63	6.0	19	00.1	81	31.3	
87	01	16	04	44	50	22	18	63	6.0	18	58.6	81	31.5	
87	01	16	05	00	02	2	18	58	5.9	18	57.1	81	31.7	
87	01	16	05	15	02	2	18	48	6.0	18	55.7	81	31.9	
87	01	16	05	30	02	2	18	54	6.0	18	54.2	81	32.1	
87	01	16	05	45	02	2	18	55	6.0	18	52.7	81	32.2	
87	01	16	06	00	02	2	18	55	6.0	18	51.2	81	32.4	
87	01	16	06	15	02	2	18	55	5.7	18	49.8	81	32.6	
87	01	16	06	30	02	2	18	55	5.7	18	48.3	81	32.7	
87	01	16	06	45	02	2	18	55	5.9	18	46.4	81	32.9	
87	01	16	06	56	02	3	18	53	5.0	18	46.3	81	33.3	
87	01	16	07	00	02	3	18	53	5.5	18	46.5	81	33.6	
87	01	16	07	15	02	3	18	54	5.8	18	47.5	81	34.7	
87	01	16	07	30	02	3	18	54	5.5	18	48.5	81	35.8	
87	01	16	07	45	02	3	18	54	5.6	18	49.3	81	36.9	
87	01	16	08	00	02	3	18	54	5.8	18	50.4	81	38.0	
87	01	16	08	15	02	3	18	54	5.9	18	51.4	81	39.1	
87	01	16	08	30	02	3	18	54	5.8	18	52.4	81	40.2	
87	01	16	08	45	02	3	18	54	6.0	18	53.4	81	41.4	
87	01	16	09	00	02	3	18	54	5.9	18	54.4	81	42.5	
87	01	16	09	15	02	3	18	55	5.8	18	55.4	81	43.7	
87	01	16	09	30	02	3	18	55	5.9	18	56.4	81	44.8	
87	01	16	09	45	02	3	18	57	6.0	18	57.4	81	45.9	
87	01	16	09	00	02	3	18	58	5.9	18	58.4	81	47.1	
87	01	16	10	15	02	3	18	59	6.0	18	59.5	81	48.3	

E.O. Line #22

S. O. LINE # 23

YR	MO	DAY	TIME	LINE #	SHIPS	COURSE	SPD	FIX TIME	NAVIGATION		TYPE	QUAL.
									± DEGREES	± MINUTES		
87	01	16	1030	023	311.4	6.0			19	00.5	81	49.4
87	01	16	1045	023	312.9	6.0			19	01.5	81	50.6
87	01	16	1100	023	312.3	5.8			19	02.5	81	51.7
87	01	16	1115	023	312.5	5.9			19	03.5	81	52.9
87	01	16	1130	023	312.5	6.0			19	04.5	81	54.1
87	01	16	1245	023	312.1	5.9			19	05.5	81	55.2
87	01	16	1200	023	316.6	5.9			19	06.5	81	56.3
87	01	16	1215	023	311.3	5.8			19	07.5	81	57.4
87	01	16	1217	023	307.8	5.8			19	07.7	81	57.6
87	01	16	1223	024	169.5	5.6			19	07.5	81	57.9
87	01	16	1230	024	170.2	6.0			19	06.9	81	57.8
87	01	16	1245	024	169.1	6.1			19	05.4	81	57.5
87	01	16	1300	024	169.5	5.8			19	03.9	81	57.2
87	01	16	1315	024	169.9	6.3			19	02.3	81	56.9
87	01	16	1330	024	168.8	6.1			19	00.8	81	56.6
87	01	16	1345	024	171.0	5.9			18	59.3	81	56.4
87	01	16	1400	024	168.7	6.2			18	57.8	81	56.1
87	01	16	1415	024	170.3	6.2			18	56.4	81	55.8
87	01	16	1430	024	168.2	6.2			18	54.9	81	55.5
87	01	16	1445	024	170.8	5.9			18	53.4	81	55.2
87	01	16	1500	024	169.2	6.0			18	51.9	81	55.0
87	01	16	1515	024	171.3	6.0			18	50.4	81	54.7
87	01	16	1530	024	169.2	6.0			18	49.0	81	54.4
87	01	16	1545	024	170.0	5.7			18	47.5	81	54.2
87	01	16	1600	024	169.6	6.2			18	46.0	81	53.9
87	01	16	1615	024	169.3	5.6			18	44.6	81	53.6
87	01	16	1630	024	167.1	5.9			18	43.2	81	53.4
87	01	16	1645	024	170.2	5.8			18	41.8	81	53.1
87	01	16	1646	024					18	41.6	81	53.1
87	01	16	1651	025	325.7	6.2			18	41.5	81	53.4

YR	MO	DAY	TIME	LINE #	SHIPS	COURSE	SPD	NAVIGATION				TYPE	QUAL.
								FIX TIME	LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES			
87	01	16	1700025	25	322.9	6.1			18 42.2	81 53.9			
87	01	16	1700025	25	322.0	6.1			18 42.2	81 53.9			
87	01	16	1715025	319.1	7.2				18 43.4	81 54.9			
87	01	16	1730025	326.1	5.8				18 44.6	81 55.8			
87	01	16	1745025	323.7	5.8				18 45.8	81 56.7			
87	01	16	1800025	323.5	5.8				18 47.0	81 57.6			
87	01	16	1815025	323.3	5.8				18 48.2	81 58.5			
87	01	16	1830025	323.3	6.0				18 49.4	81 59.4			
87	01	16	1845025	322.5	5.8				18 50.5	82 00.4			
87	01	16	1900025	323.9	5.8				18 51.7	82 01.3			
87	01	16	1915025	321.1	5.6				18 52.9	82 02.2			
87	01	16	1930025	323.9	6.1				18 54.1	82 03.1			
87	01	16	1945025	323.7	6.1				18 55.3	82 04.1			
87	01	16	2000025	324.9	6.3				18 56.6	82 05.0			
87	01	16	2015025	323.5	6.2				18 57.8	82 06.0			
87	01	16	2030025	323.2	6.1				18 59.1	82 07.0			
87	01	16	2045025	323.6	6.1				19 00.3	82 08.0			
87	01	16	2100025	322.4	6.1				19 01.6	82 08.9			
87	01	16	2114025	317.3	6.1				19 02.7	82 09.8			
87	01	16	2120026	253.6	5.0				19 02.9	82 10.3			
87	01	16	2130026	252.6	5.8				19 02.7	82 11.3			
87	01	16	2145026	254.7	5.9				19 02.3	82 12.8			
87	01	16	2200026	253.3	5.9				19 01.8	82 14.1			
87	01	16	2215026	253.4	5.9				19 01.4	82 15.8			
87	01	16	2230026	251.7	6.0				19 00.9	82 17.2			
87	01	16	2245026	253.8	5.9				19 00.6	82 18.7			
87	01	16	2300026	254.5	5.9				19 00.2	82 20.3			
87	01	16	2315026	250.2	5.9				18 59.7	82 21.7			
87	01	16	2330026	253.5	6.0				18 59.3	82 23.2			
87	01	16	2345026	250.3	6.1				18 58.9	82 24.8			

END of LINE #25 START TURN into LINE #26

START of Line # 26 ON LINE

				SHIPS		NAVIGATION							
YR	MO	DAY	TIME	LINE #	COURSE	SPD	FIX TIME	LATITUDE		LONGITUDE		TYPE	QUAL.
								± DEGREES	± MINUTES	± DEGREES	± MINUTES		
87	01	17	00000026	2523	6.1			18	58.5	82	26.3		
87	01	17	0012026252	96.2				18	58.1	82	27.6		
87	01	17	0020027140	95.1				18	57.6	82	27.5		
87	01	17	0030027136	45.8				18	56.9	82	26.9		
87	01	17	0045027135	45.7				18	56.0	82	25.9		
87	01	17	0100027135	66.0				18	54.9	82	24.8		
87	01	17	0115027134	45.3				18	53.9	82	23.7		
87	01	17	0130027135	15.9				18	52.9	82	22.6		
87	01	17	0145027134	95.8				18	51.9	82	21.6		
87	01	17	0200027136	05.6				18	50.9	82	20.5		
87	01	17	0215027134	55.6				18	49.9	82	19.4		
87	01	17	0230027135	75.8				18	48.8	82	18.3		
87	01	17	0245027134	45.8				18	47.7	82	17.2		
87	01	17	0300027132	85.8				18	46.7	82	16.0		
87	01	17	0315027136	95.8				18	45.7	82	15.0		
87	01	17	0330027137	65.8				18	44.6	82	14.0		
87	01	17	0345027136	16.1				18	43.5	82	13.0		
87	01	17	0400027135	55.9				18	42.5	82	11.9		
87	01	17	0415027135	76.1				18	41.4	82	10.8		
87	01	17	0430027136	65.8				18	40.4	82	09.7		
87	01	17	0445027133	95.8				18	39.3	82	08.6		
87	01	17	0500027135	05.7				18	38.3	82	07.5		
87	01	17	0515027134	85.3				18	37.3	82	06.5		
87	01	17	0530027134	36.0				18	36.2	82	05.4		
87	01	17	0545027135	36.1				18	35.1	82	04.3		
87	01	17	0600027134	56.1				18	34.1	82	03.2		
87	01	17	0615027135	05.6				18	33.0	82	02.1		
87	01	17	0630027133	45.9				18	31.9	82	01.0		
87	01	17	0641027133	55.9				18	31.1	82	00.1		
87	01	17	0644028107	55.6				18	31.0	82	00.0		

YR	MO	DAY	TIME	LINE #	SHIPS	COURSE	SPD	FIX TIME	NAVIGATION		TYPE	QUAL.
									± DEGREES	± MINUTES		
87	01	17	0700	029	1053	5.9			18	30.6	81	58.4
87	01	17	0715	028	105.5	5.7			18	30.2	81	56.9
87	01	17	0730	028	104.3	5.9			18	29.8	81	55.4
87	01	17	0800	028	108.7	6.0			18	29.0	81	52.4
87	01	17	0815	028	104.7	5.8			18	28.5	81	50.9
87	01	17	0830	028	103.4	6.3			18	28.2	81	49.3
87	01	17	0845	028	105.5	6.3			18	27.8	81	47.8
87	01	17	0900	028	105.7	6.1			18	27.3	81	46.3
87	01	17	0915	028	105.4	6.3			18	26.9	81	44.7
87	01	17	0930	028	105.6	6.2			18	26.5	81	43.1
87	01	17	0945	028	106.3	6.2			18	26.1	81	41.6
87	01	17	1000	028	106.3	6.3			18	25.7	81	39.9
87	01	17	1015	028	104.9	6.1			18	25.3	81	38.4
87	01	17	1030	028	106.7	5.8			18	24.8	81	36.8
87	01	17	1045	028	105.4	5.8			18	24.4	81	35.3
87	01	17	1100	028	106.1	6.0			18	24.0	81	33.8
87	01	17	1115	028	104.6	6.1			18	23.6	81	32.2
87	01	17	1130	028	105.8	6.1			18	23.2	81	30.7
87	01	17	1145	028	104.0	6.1			18	22.8	81	29.1
87	01	17	1200	028	105.4	6.1			18	22.4	81	27.6
87	01	17	1213	028	106.0	5.9			18	22.0	81	26.2
87	01	17	1217	029	133.3	6.2			18	21.8	81	25.8
87	01	17	1230	029	130.7	6.0			18	20.9	81	24.8
87	01	17	1245	029	134.0	6.1			18	19.9	81	23.7
87	01	17	1300	029	129.3	6.2			18	18.9	81	22.5
87	01	17	1315	029	123.7	5.8			18	17.8	81	21.3
87	01	17	1330	029	132.5	6.2			18	16.8	81	20.1
87	01	17	1345	029	131.2	6.5			18	15.7	81	19.0
87	01	17	1400	029	130.1	5.8			18	14.6	81	17.8
87	01	17	1415	029	132.9	6.1			18	13.6	81	16.6

End of line #28 start turns into line #29
start of line #29 on line.

YR	MO	DAY	TIME	LINE #	SHIPS	NAVIGATION						
						FIX TIME	± DEGREES	± MINUTES	LONGITUDE	± DEGREES	± MINUTES	TYPE
8701	17	1430	029	130.4	G.2		18	12.5	81	15.4		
8701	17	1445	029	130.3	G.2		18	11.5	81	14.2		
8701	17	1500	029	133.0	G.6		18	10.4	81	13.0		
8701	17	1515	15029	129.5	G.3		18	09.3	81	11.8		
8701	17	1530	029	132.4	G.1		18	08.2	81	10.6		
8701	17	1545	029	131.9	G.0		18	07.2	81	09.4		
8701	17	1600	029	130.6	G.3		18	06.1	81	08.3		
8701	17	1615	5029	132.2	S.3		18	05.1	81	07.1		
8701	17	1630	029	130.8	G.1		18	04.1	81	06.0		
8701	17	1645	029	131.8	G.2		18	03.1	81	04.9		
8701	17	1700	029	132.4	G.6		18	02.1	81	03.7		
8701	17	1730	029	133.0	S.5		18	00.1	81	02.5		
8701	17	1745	029	131.9	S.9		17	59.1	81	00.4		
8701	17	1800	029	133.2	S.7		17	58.0	80	59.2		
8701	17	1815	5029	131.5	S.6		17	57.0	80	58.1		
8701	17	1830	029	131.2	S.5		17	56.0	80	56.9		
8701	17	1845	029	131.2	G.6		17	55.0	80	55.8		
8701	17	1900	029	133.5	S.7		17	54.0	80	54.7		
8701	17	1915	5029	131.4	b.0		17	53.0	80	53.7		
8701	17	1930	029	132.1	S.0		17	52.1	80	52.6		
8701	17	1945	029	130.1	S.4		17	51.1	80	51.5		
8701	17	2000	029	133.5	S.6		17	50.1	80	50.4		
8701	17	2015	5029	132.8	S.9		17	49.2	80	49.3		
8701	17	2030	029	133.7	S.6		17	48.2	80	48.3		
8701	17	2045	029	133.9	S.7		17	47.3	80	47.3		
8701	17	2100	029	132.2	G.9		17	46.4	80	46.3		
8701	17	2115	5029	135.6	G.8		17	45.5	80	45.3		
8701	17	2130	029	132.4	G.0		17	44.6	80	44.3		
8701	17	2145	5029	132.4	b.1		17	43.6	80	43.2		
8701	17	2200	029	135.2	G.2		17	42.6	80	42.1		

YR	MO	DAY	TIME	LINE #	SHIPS	NAVIGATION							
						FIX TIME	LATITUDE		LONGITUDE		TYPE	QUAL.	
							± DEGREES	± MINUTES	± DEGREES	± MINUTES			
8701172215029	135.75.1						17 41 .6		80 40 .9				
8701172230029	133.76.0						17 40 .7		80 39 .9				
8701172245029	132.15.8						17 39 .7		80 38 .8				
*8701172251029	131.46.1						17 39 .3		80 38 .3				
*8701172258030	22.67.6						17 39 .7		80 37 .8				
8701172300030	20.78.0						17 39 .9		80 37 .7				
8701172315030	19.16.0						17 41 .5		80 37 .2				
8701172330030	19.36.1						17 42 .9		80 36 .7				
8701172345030	20.66.0						17 44 .4		80 36 .2				
8701180000030	28.36.4						17 45 .8		80 35 .5				
8701180015030	20.16.5						17 47 .4		80 34 .8				
8701180030030	20.47.0						17 48 .9		80 34 .2				
8701180045030	19.67.0						17 50 .6		80 33 .5				
8701180100030	28.66.4						17 52 .2		80 32 .9				
8701180115030	19.16.4						17 53 .7		80 32 .3				
8701180130030	19.66.8						17 55 .2		80 31 .7				
8701180145030	19.86.3						17 56 .8		80 31 .1				
8701180200030	19.15.8						17 58 .2		80 30 .5				
8701180215030	20.26.4						17 59 .6		80 30 .0				
8701180230030	21.36.6						18 01 .1		80 29 .4				
8701180245030	20.36.6						18 02 .6		80 28 .8				
8701180300030	20.36.6						18 04 .1		80 28 .2				
8701180315030	19.16.4						18 05 .6		80 27 .6				
8701180330030	17.36.2						18 07 .1		80 27 .1				
8701180345030	21.65.9						18 08 .6		80 26 .5				
8701180400030	19.76.1						18 10 .0		80 26 .0				
8701180415030	22.96.6						18 11 .5		80 25 .4				
8701180430030	22.26.6						18 13 .1		80 24 .8				
8701180445030	20.66.7						18 14 .6		80 24 .2				
8501180500030	21.66.9						18 16 .2		80 23 .6				

YR	MO	DAY	TIME	LINE #	SHIPS COURSE	SPD	NAVIGATION						
							FIX TIME	LATITUDE ± DEGREES ± MINUTES		LONGITUDE ± DEGREES ± MINUTES		TYPE	QUAL.
8701	1005	15030	031	106.9				18	17.9	20	23.0		
8701	180530	030	18.9	6.9				18	19.5	80	22.3		
8701	180545	030	22.3	7.0				18	21.2	80	21.7		
8701	180559	030	22.9	6.9				18	22.8	80	21.1		
8701	180603	031	119.3	4.3				18	22.9	80	20.8		
8701	180615	031	118.8	6.3				18	22.3	80	19.7		
8701	180630	031	119.6	6.1				18	21.5	80	18.2		
8701	180645	031	121.8	6.6				18	20.7	80	16.8		
8701	180700	031	118.2	5.7				18	20.0	80	15.4		
8701	180715	031	121.0	6.6				18	19.2	80	13.9		
8701	180730	031	117.3	6.2				18	18.4	80	12.5		
8701	180745	031	120.3	6.4				18	17.6	80	11.1		
8701	180800	031	122.0	5.6				18	16.9	80	09.6		
8701	180815	031	120.0	7.0				18	16.0	80	08.1		
8701	180830	031	118.1	6.2				18	15.2	80	06.6		
8701	180845	031	121.9	6.8				18	14.5	80	05.1		
8701	180900	031	119.0	7.0				18	13.6	80	03.7		
8701	180915	031	118.4	6.0				18	12.9	80	02.3		
8701	180930	031	118.1	6.4				18	12.1	80	00.8		
8701	180945	031	120.2	5.9				18	11.3	79	59.3		
8701	181000	031	120.0	6.0				18	10.5	79	57.9		
8701	181015	031	119.3	6.7				18	09.7	79	56.4		
8701	181030	031	118.2	7.0				18	08.9	79	54.9		
8701	181045	031	119.2	6.0				18	08.1	79	53.5		
8701	181100	031	119.2	7.4				18	07.4	79	52.1		
8701	181115	031	117.6	6.9				18	06.6	79	50.6		
8701	181130	031	119.5	6.2				18	05.8	79	49.1		
8701	181145	031	121.3	5.9				18	04.9	79	47.6		
8701	181200	031	115.3	6.5				18	04.1	79	46.0		
8701	181215	031	118.0	6.4				18	03.3	79	44.5		

